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Extending their work to angiosperms, TUPPER and BAILEY[12] found the average length of their wood elements to be twice that of the corresponding structures in gymnosperms except in the vesselless angiosperms, *Tetracentron*, *Trochodendron*, and *Drimys*, which seem to have the typical gymnospermous length of wood elements. More recently, PRITCHARD and BAILEY[13] examined *Carya ovata* and reached the general conclusion that both in conifers and in woody dicotyledons there is a period in the early stages of the life history during which the woody elements increase in size comparatively rapidly, the length of the period varying in different groups. Furthermore, different types of xylem elements, such as tracheids, wood fibers, and vessel segments, behave very differently, but their size generally fluctuates more or less during the later stages of the development of the stem.—GEO. D. FULLER.

Taxonomic notes.—COOK[14] has made a comparison of the peculiar branching and flowering habits of Cacao (*Theobroma cacao*) and Patachte, formerly referred to *Theobroma*, but recently made the basis of a new genus (*Tribroma*) by COOK.[15] The comparison deals with morphological and ecological features of the two genera, as exhibited under cultivation in eastern Guatemala.

GREENMAN[16] has described a new species of *Senecio* (*S. Hollickii*), collected by BRITTON and HOLLICK in Jamaica in 1908.

GROVE[17] has described, along with other new fungi, a new genus (*Diploöspora*) of Ascomycetes.

ORTON[18] has monographed the North American species of *Allodus*, a genus of Uredinales whose most conspicuous feature is the frequent close association of aecia and telia on the same plant parts, and the absence of distinct uredinia. The most interesting fact in connection with its host relationships is that no host occurs among the Rosales. There are 47 species recognized, including 4 new species and 20 new combinations.

SPRAGUE and HUTCHINSON,[19] in connection with a report upon a collection of African Anonaceae, call attention to the great increase in our knowledge of

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[12] TUPPER, W. W., and BAILEY, I. W., The secondary xylems of gymnosperms and angiosperms. Science **43**:323. 1916.

[13] PRITCHARD, R. P., and BAILEY, I. W., The significance of certain variations in the anatomical structure of wood. Forest Quart. **14**:662–670. 1916.

[14] COOK, O. F., Branching and flowering habits of Cacao and Patachte. Contr. U.S. Nat. Herb. **17**:609–625. *pls. 44–54*. 1916.

[15] Jour. Wash. Acad. Sci. **5**:288. *pls. 46–50, 52, 54*. 1915.

[16] GREENMAN, J. M., A new *Senecio* from Jamaica. Ann. Mo. Bot. Gard. **3**:201, 202. 1916.

[17] GROVE, W. B., New or noteworthy fungi. V. Jour. Botany **54**:217–223. 1916.

[18] ORTON, C. R., North American species of *Allodus*. Mem. N.Y. Bot. Gard. **6**:173–208. 1916.

[19] SPRAGUE, T. A., and HUTCHINSON, J., African Anonaceae. Kew Bull. no. 6. pp. 145–161. *figs. 3*. 1916.

the tropical African flora, as illustrated by this family. In 1868, the date of publication of the first volume of the *Flora of tropical Africa*, only 13 genera and 59 species of Anonaceae were known; while in 1901 there were 23 genera and 170 species recorded, and at present 27 genera are known. In the present paper the limits of certain genera are revised and several species are transferred. New species are also described in *Artabotrys*, *Isolona*, *Oxymitra* (3), *Uvaria*, and *Xylopia*.

WERNHAM[20] has published a new genus (*Pseudomussaenda*) of Rubiaceae from the "Nile-land districts" of tropical Africa. It includes 3 species formerly referred to *Mussaenda*, to which a new species is added.—J. M. C.

Extraction of sap.—GORTNER, LAWRENCE, and HARRIS[21] have repeated and extended the work of DIXON and ATKINS on the extraction of sap from plant tissues. Their primary purpose was to determine something concerning the nature, amount, and regularity of the change in the concentration of the sap extracted from a mass of tissue under continuous pressure. The results secured fully substantiate the conclusions of DIXON and ATKINS that samples of sap pressed from unfrozen tissues cannot be taken as typical of the original concentration of the juices in the tissues. In general, successive samples extracted by continuous pressing become more concentrated. The authors have shown that such, however, is not always the case. In some instances the fluid may become less and less concentrated, for example, extractions from cabbage leaves. In other instances all fractions may be about the same in concentration. The development of the freezing method to render tissues permeable and thereby obtain typical samples of sap has marked a great advance in the study of the properties of vegetable saps.—CHAS. O. APPLEMAN.

A new soil constituent.—An unusual organic soil constituent has been isolated and identified as α-crotonic acid by WALTERS and WISE.[22] This unsaturated acid was found associated with infertility in a Texas soil where drainage is poor, basic compounds deficient, and oxidizing power low. The physical and chemical properties of the purified soil acid agree with the properties of the synthetic acid. The occurrence of this acid in nature had not been certainly established previously. The authors suggest that it may be formed from aliphatic β-hydroxy acids which are produced during the destruction of cellulose, or by hydrolysis of allyl cyanid which occurs in the essential oils of some plants.—CHARLES A. SHULL.

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[20] WERNHAM, H. F., *Pseudomussaenda*, a new genus of Rubiaceae. Jour. Botany **54**:297–301. 1916.

[21] GORTNER, ROSS AIKEN, LAWRENCE, JOHN V., and HARRIS, J. ARTHUR, The extraction of sap from plant tissues by pressure. Biochem. Bull. **5**:130–141. 1916.

[22] WALTERS, E. H., and WISE, LOUIS E., α-Crotonic acid, a soil constituent. Jour. Agric. Research **6**:1043–1045. 1916.